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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/519,839 | 01/12/2005 | Tetsuya Tanaka | 263986US2PCT | 7511 |

22850 7590 06/13/2006

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| EXAMINER |
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LOFTIN, CELESTE

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| ART UNIT | PAPER NUMBER |
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2617

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/519,839 | TANAKA, TETSUYA | |
| | Examiner | Art Unit | |
| | Celeste L. Loftin | 2617 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Uozumi and Hosonuma deal with mobile phones and the variance in frequency. They both use capacitance to control or vary the frequency.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito, **US Patent 7,010,334**, in view of Hosonuma, **U.S. Publication 09,866,973**.

Regarding claim 1, Saito discloses a mobile radio set comprising:

a first housing and a second housing (i.e. the upper body and the lower body are connected to each other through a hinge) (**col. 7 lines 5-10**) including any of a transmitter circuit section, a receiver circuit section, and a radio circuit section (the phone includes a upper circuit and lower body circuit) (**col. 7 lines 10-15**), the second housing corresponding to a location of a user's mouth when the mobile radio set is in an open state (the lower body contains a lower body circuit board, lower body circuit, power supply terminal, microphone, key operation part, and an antenna) (**col. 7 lines 13-20**);

a flexible cable providing a connection between a circuit section of said first housing and a circuit section of said second housing (the upper body circuit board and the lower body circuit board are connected to each other through a connection 18 between the upper and the lower circuits, extends through the hinge and reaches both the upper and lower body) (**col. 7 lines 30-50**);

an antenna that is electrically connection to said radio circuit section and is located at the end of said second housing remote from said first housing (the antenna is mounted on a portion close to the microphone at the end in the longitudinal direction of the lower body remote from the hinge through which the lower body is connected to the upper body) (**col. 7 lines 15-20**);

Saito fails to disclose a bottom board cable providing a connection between bottom boards of said first housing and second housing; and

a variable load that is inserted in series in said bottom board cable.

In a similar field of endeavor, Hosonuma discloses a bottom board cable providing a connection between bottom boards of said first housing and second housing (the antenna, antenna matching circuit and matching characteristic changeover circuit are connected to one another through an antenna feeding point) (**paragraphs [0049], [0042], [0051], and Figure 2**); and

a variable load that is inserted in series in said bottom board cable (the matching characteristic changeover circuit contains a resistor that varies based on the voltage supplied to it) (**paragraph [0049], [0055], and [0053]**).

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Saito to include discloses a bottom board cable providing a connection between bottom boards of said first housing and second housing; and a variable load that is inserted in series in said bottom board cable. Motivation for this modification would have been to optimize the use of the antenna without increasing the body length of the phone.

Regarding claim 2, the combination discloses the mobile radio set according to claim 1. Hosonuma further discusses wherein a frequency to be used is detected, and a reactance component of said variable load is changed depending on a detected frequency (the high frequency current varies depending on the state (whether the phone is folded or not) of the phone and the control section detects the state of the phone and then applies a predetermined voltage to the resistor and the current defined by value of the resistor flows through R1 (if the frequency current is not detected (due to the state) voltage will not be applied to the resistor)) (**paragraph [0051] , [0053], and [0055]**).

Regarding claim 3, the combination discloses the mobile radio set according to claim 1. Hosonuma further discloses wherein it is detected whether being in a standby state or a telephone call state (it is well known in the art that when a foldable phone is close the phone is in standby state and when the foldable phone is open it is in a state for a telephone call), and a reactance components of said variable load is changed depending on a detected state (the high frequency current varies depending on the state (whether the phone is folded or not) of the phone and the control section detects the state of the phone and then applies a predetermined voltage to the resistor and the current defined by value of the resistor flows through R1 (if the frequency current is not detected (due to the state) voltage will not be applied to the resistor)) (**paragraph [0051] , [0053], and [0055]**).

Regarding claim 4, the combination discloses the mobile radio set according to claim 1. Hosonuma further discloses wherein said first housing and second housing can be flip-open or closed, it is detected whether or not said housings are in an open state or in a closed state (whether the phone is folded or not), and a reactance component of said variable load is changed depending on a detected state (the high frequency current varies depending on the state (whether the phone is folded or not) of the phone and the control section detects the state of the phone and then applies a predetermined voltage to the resistor and the current defined by value of the resistor flows through R1 (if the frequency current is not detected (due to the state) voltage will not be applied to the resistor)) (**paragraph [0051] , [0053], and [0055]**).

4. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito, **US Patent 7,010,334**, in view of Hosonuma, **U.S. Publication 09,866,973**, in further view of Uozumi et al (Uozumi), **U.S. Publication 10,373,020**.

Regarding claim 5, the combination discloses the mobile radio set according to claim 1, but fails to disclose wherein an active element such as a varicap diode is employed as said variable load.

In a similar field of endeavor, Uozumi wherein an active element such as a varicap diode is employed as said variable load (the RFVCO has a varicap diode as a variable capacitor element, such that this varicap diode is changed by the tuning voltage from the LPF) (**paragraph [0067] and [0066]**).

At the time of the invention it would have been obvious of one skilled in the art to modify the combination to include wherein an active element such as a varicap diode is employed as said variable load. Motivation for this modification would have been compensate for the fluctuation of the sensitivity of the frequency thus improving the performance.

Regarding claim 6, the combination discloses the mobile radio set according to claim 2, but fails to disclose wherein an active element such as a varicap diode is employed as said variable load.

In a similar field of endeavor, Uozumi wherein an active element such as a varicap diode is employed as said variable load (the RFVCO has a varicap diode as a variable capacitor element, such that this varicap diode is changed by the tuning voltage from the LPF) (**paragraph [0067] and [0066]**).

At the time of the invention it would have been obvious of one skilled in the art to modify the combination to include wherein an active element such as a varicap diode is employed as said variable load. Motivation for this modification would have been compensate for the fluctuation of the sensitivity of the frequency thus improving the performance.

Regarding claim 7, the combination discloses the mobile radio set according to claim 3, but fails to disclose wherein an active element such as a varicap diode is employed as said variable load.

In a similar field of endeavor, Uozumi wherein an active element such as a varicap diode is employed as said variable load (the RFVCO has a varicap diode as a variable capacitor element, such that this varicap diode is changed by the tuning voltage from the LPF) (**paragraph [0067] and [0066]**).

At the time of the invention it would have been obvious of one skilled in the art to modify the combination to include wherein an active element such as a varicap diode is employed as said variable load. Motivation for this modification would have been compensate for the fluctuation of the sensitivity of the frequency thus improving the performance.

Regarding claim 8, the combination discloses the mobile radio set according to claim 4, but fails to disclose wherein an active element such as a varicap diode is employed as said variable load.

In a similar field of endeavor, Uozumi wherein an active element such as a varicap diode is employed as said variable load (the RFVCO has a varicap diode as a

variable capacitor element, such that this varicap diode is changed by the tuning voltage from the LPF) (**paragraph [0067] and [0066]**).

At the time of the invention it would have been obvious of one skilled in the art to modify the combination to include wherein an active element such as a varicap diode is employed as said variable load. Motivation for this modification would have been compensate for the fluctuation of the sensitivity of the frequency thus improving the performance.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

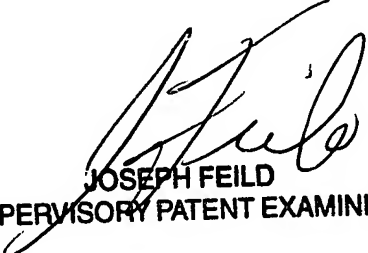
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Celeste L. Loftin whose telephone number is 571-272-2842. The examiner can normally be reached on Monday thru Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CL


JOSEPH FEILD
SUPERVISORY PATENT EXAMINER